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ABSTRACT

This paper addresses the issue of incorporating creative thinking and problem solving techniques into an established teacher education methods course for prospective preschool teachers. The project's goals were (1) to increase students' knowledge and understanding of the value of creative thinking skills; (2) to provide group exercises using the four basic elements of divergent thinking; and (3) to evaluate students' application of creativity principles in their written assignments. The verbal and figural sections of the Torrance Tests of Creative Thinking and an evaluative survey questionnaire developed by the author were used to assess students' creative behaviors. Using a course alteration method, ideational strategies were integrated into all aspects of the child development methods course. After completing the implementation, the evaluation instruments were analyzed: results from the creativity exercises indicated that 85% of the students showed gains in one or more of the divergency factor areas of the TTCT scales. From the evaluation survey questionnaire, 95% of the students rated the ideational strategies infomative and enriching. The results of the creativity practicum and the conclusions and recommendations of this report are discussed. (Author/DST)

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The Implementation of Strategies to Improve the Creative Behaviors of Prospective Preschool Teachers

by

Beverly Barber Martin

Cluster XIV

A Practicum Report Presented to the Ed.D. Program
in Early and Middle Childhood
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

NOVA UNIVERSITY

1985

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ABSTRACT

The Implementation of Strategies to Improve the Creative Behaviors of Prospective Preschool Teachers. Martin, Beverly Barber, 1985: Practicum Report, Nova University, Ed.D. Early and Middle Childhood Program Descriptors: Creativity/Creative problem-solving/ Critical Thinking/Split Brain Learning/Learning Style Differences/Creativity and Gifted/Teacher Training Programs/Curriculum/Community Colleges.

This practicum addressed the issue of incorporating creative thinking and problem solving techniques into an established college course. A review of the literature and a survey of faculty and staff revealed that creative education strategies are seldom integrated into the structure of Early Childhood training programs for educators of young children.

The author's goals were: (1) to increase students' knowledge and understanding of the value of creative thinking skills; (2) to provide group exercises using the four basic elements of divergent thinking; and (3) to evaluate students' application of creativity principles in their written assignments. The verbal and figural sections of the Torrance Tests of Creative Thinking and an Evaluative Survey Questionnaire were used to assess students' creative behaviors. Using a course alteration method, ideational strategies were integrated into all aspects of the Child Development methods course.

Upon completion of the implementation, the evaluation instruments were analyzed. The results from the creativity exercises indicated that 85% of the students showed gains in one or more of the divergency factor areas of the TTCT scales. From the Evaluation Survey Questionnaire, 95% of the students rated the ideational strategies informative and enriching. The results of the creativity practicum project were successful, and the standards of performance were met for all of the stated goals.

CHAPTER I: INTRODUCTION

A. DESCRIPTION OF COMMUNITY AND WORK SETTING

Chicago, Illinois ranks third in population among the major cities of the United States. Although the city continues to thrive as a strong industrial workplace, in recent years Chicago has concentrated on high technology, business, and the service industries in keeping with the changing national focus. As a major metropolis, Chicago has a population encompassing a variety of economic, ethnic, racial, and social class groups. As individuals migrate to the United States from other countries, there is a continuous influx of new residents into the city as they unite with family and friends.

Chicago has a number of private colleges and universities including well-known institutions as the University of Chicago, University of Illinois at Chicago, and Northwestern University in adjacent Evanston. The state university system has three campuses in or near the city - two within the city boundaries, and a third campus in nearby Park Forest, Illinois.

The City Colleges of Chicago have nine community college campuses. All of the campuses provide vocational

training in various fields, in addition to academic preparation at the lower division level. The nine campuses serve as feeder colleges to the state university system, local private colleges, and college campuses throughout the state of Illinois.

Kennedy-King College is one of the largest of the City College campuses. In the past five years, enrollment has averaged 7,000 to 8,500 students per academic year. Since the early 1970's, when there were enrollments of 10,000 students, there has been a steady decline to the present levels. These declines, however, are city wide and have affected all of the city college campuses. Kennedy-King College is an urban campus located on an 18-acre site in a predominantly Black community. The Englewood community is comprised of lower to lower-middle income families primarily employed in industrial and service jobs throughout the city.

The average student at Kennedy-King College is a Black female, 28 years of age, and lives within a five-mile radius of the college. According to 1982 statistics, enrollment is 57 per cent female and 43 per cent male. Students are fairly equally divided between part time - 48 per cent, and full time - 52 percent (North Central Evaluation, 1982).

The majority of students are enrolled in degree-granting programs. This is true for those who were initially

enrolled in one of the year certificate programs. The certificate programs are primarily in the Applied Sciences Department and the Department of Human and Developmental Services.

The Child Development Program at Kennedy-King College is within the Department of Human and Developmental Services, and is one of the most comprehensive programs of all the campuses. There are certificate and degree programs in three areas under the auspices of Child Development - Special Education, Preschool Education, and Residential Child Care.

Eight of the nine campuses within the City Colleges offer instruction in Child Development and seven of these campuses have full-day child care centers on the premises.

B. WRITER'S ROLE AND RESPONSIBILITIES

The author is one of the preschool education faculty members and has been affiliated with three of the City College campuses since 1976. During the 1984-1985 academic year, the majority of the author's teaching program was scheduled at the Kennedy-King campus.

As faculty member, the author's responsibilities cover several areas.

Classroom Instruction:

A. Teach a minimum of twelve credit hours per semester, or 24 credit hours per academic year.

B. Develop course objectives, course content, syllabi, assignments, and evaluation measures for each course, in compliance with the specifications of the City Colleges Central Office guidelines.

C. Coordinate classroom assignments to the Child Development Center for students to have a continuous input of theory and practical experiences.

Student Services:

A. Individualized program advisement and monitoring of students' progress through the academic year.

B. Consultations and referrals to appropriate support services for family and personal counseling.

C. Supportive faculty member for the Child Development Student Group.

College Responsibilities and Activities:

A. Participant in faculty inservice courses and seminars.

B. Active member of Academic Standards Committee and Rank Committee.

Community Involvement:

A. Coordinate off-campus learning experiences for students.

B. Guest lecturer for community organizations.

CHAPTER II: STUDY OF THE PROBLEM

A. PROBLEM DESCRIPTION

If divergent thinking is defined as the ability to generate a number of responses to a single idea, it can readily be observed that community college students often experience difficulty moving from predictable responses into more original ideas in their efforts to encourage young children to think and behave in creative ways. Students tend toward one-dimensional thinking in their planning behaviors when they focus more on achieving a preplanned goal rather than attending to the procedural or processing stage that occurs before the end of the activity.

Students have a tendency to validate and reward the responses from the children that reinforce their preplanned goals, thus many valuable unintended occurrences go unnoticed and unrewarded. Often when an activity deviates from its original plan the student is likely to interpret this shift as a sign of loss of control or failure, instead of understanding that the children are creatively detouring and have taken authority over their own learning experience.

The concerns outlined in this report become more pronounced during the student teaching semester which comprises the final field-based experience in the teacher training program. Only a limited number of students can be

placed at the on-campus facility, therefore local private day care centers are selected for many of the students. In spite of the fact that concerted effort has been made by faculty to select sites that are aligned with the training program's philosophy, some placements are based on student selection which often proves to be a mistake later on.

Unfortunately, many day care centers in the area endorse early training for basic school skills without a balance of creativity and creative thinking skill development. These environments tend to be more highly structured and drill-oriented than the on-campus facility. Some centers place a great deal of emphasis on accommodating parents' anxieties over preparing preschoolers for reading, and since a steady enrollment of children is an ongoing concern, this may account for the heavy concentration on early preparation for the basics. Possibly this explains why this emphasis often occurs at centers where the teaching staff have received specialized early childhood training from college programs that endorse a much different interpretation of early learning.

Student teacher trainees placed in these environments are still at a formative stage of developing their own unique teaching style. It is, therefore, at this critical time of being highly impressionable that adults around them serve as teaching models. Student teachers are accountable

to the center staff and, at times, stay in conflict over philosophy and teaching techniques. In this situation, it is extremely difficult to allow a student to continue in the setting, yet the choices available for reassignment can be limited, and the loss of documented clinical hours becomes a primary concern.

The problem deflects to everyone involved in the training program. Students, highly vulnerable, are either thrust into a state of dissonance over conflicting values, or if fortunate enough to experience quality placements, acquire self confidence and a stronger philosophical base upon which to develop their own unique teaching style. The faculty and staff at the College are sensitive to the influence that the training program has on students in shaping their behaviors as effective teachers of young children. Responsibility is weighed individually and collectively by the faculty members. Discussions have prevailed in the past, but few strategies for change have resulted. Faculty members continue to make individual adjustments to their courses, and have often expressed a desire to establish a clearer philosophical base, and possibly different approaches to the instructional strategies for teacher preparation in the program.

In viewing the involvement of the college, the students, and the local centers, it can readily be seen that a contributing force has been the prevailing

influence of the school system. The heavy emphasis on accountability, basic skills, reading scores, convergent-type tests, and evaluative measures that tend to stratify a child as winner or loser in the early grades, has strongly determined the type of learnings that are valued and promoted in pre-kindergarten settings throughout the community.

A related concern is the minimal extent of recognition and the lack of regard given to teaching and learning style differences. Within a training program there is an interplay between the attitudes of the student trainees and the instructor. As suggested by Atwood (1975) individual learning styles and teaching styles can harmonize in support of one another or remain in conflict. Atwood further comments that college instructors should become more aware of how the attitudes and teaching behavioral styles they project in the classroom affects their students.

The ways in which individuals process information and the creative thinking skills inherent within these cognitive mechanisms needs to be clearly understood. To the extent that this knowledge is absent, the instructional strategies of teachers at the college level tends not to reflect an understanding of the relationship between content, process, and end product.

To develop strategies that assist students to look at the process within an activity as carefully as they

focus on the end product has been a continued concern of the author. While evaluating the students papers, the weaker points in their strategies can usually be traced to the procedures or "process" section of their activity plan, and again can be observed in their overt teaching behaviors. It is the author's belief that many of the students have existed for years within educational environments that reinforce conformity and passive learning, and they have difficulty developing ideas that stimulate their creative and critical thinking behaviors. Subsequently, their communication with children tends to be more directive than exploratory, and the questions they ask of children are mainly simple convergent types. Since convergent questions tend to limit the number and quality of responses given by the children, classroom activities often appear to be more teacher-directed and the children remain relatively passive learners, responding on cue rather than freely and spontaneously at will. This can be observed in body movements - i.e. a young child's body movements can appear to correspond to the thinking processes that are being stimulated in his mind at any given time. If the incoming information or directive is communicated within a narrow focus, the child's body may reflect constraints. Possibly creative adult-to-child communication is less a matter of special training and more a result of practice

that leads to an intuitive knowing of how to motivate young learners to question and explore beyond a given experience.

An important part of the process phase of lesson planning is the formulation of questions. Open and closed questions are classified as aspects of convergent and divergent thinking behaviors. Developed by Guilford (1967) as part of his Model of the Structure of Intellect, the terms provide useful categories for planning strategies to enhance creative expression. As applied to questioning skills, divergent questions lead to the production of many responses (fluency) and different kinds of responses (flexibility). Convergent questions lead to one-word responses.

Several researchers have taken the hierachical steps outlined in Benjamin Bloom's Taxonomy of Educational Objectives (1976) and developed thinking and questioning skill formats appropriate to the various cognitive levels identified for young children. This type of data can be useful as guidelines for developing dialogue and communication skills for classroom adult-child interactions (Bailey and Leonard, 1972; Kitano, 1980).

In essence, the identified problem covers a much broader area than the immediate setting of the author's college training program. Although these concerns are pervasive throughout community college programs nationwide,

the child development programs within the two-year college system are perceived to be an important point at which to address these concerns, and to strive to develop the creative and critical thinking abilities of students who will directly effect the lives of children, and indirectly influence the overall quality of education.

B. PROBLEM DOCUMENTATION

The following representative comments were extracted from conversations with Child Development faculty and staff members at the Truman and Kennedy-King campuses of the City Colleges:

QUESTION: Do you feel we prepare students to be creative thinkers and planners?

General Responses Given:

1. A teacher can come to us with a great resumé but lack creativity and the ability to flow easily and to spontaneously revise the schedule when an unexpected new experience occurs.(director)
2. They know not to make models for art, but they're still too rigid. (teacher)
3. I'm not sure I understand what you mean by creativity. (faculty)
4. I'm not sure they know what they want to see happen. It's like they're satisfied that the child is learning if he seems happy. (teacher)

5. No, I don't think we do enough about teaching our students how children learn. Some catch on right away and some don't ever seem to pick it up. (faculty)
6. I see lots of good interaction with the children by some students but most of them still are just feeling their way. (teacher)
7. I think I need to see some videotaping so that I understand what you mean by "teaching to the process." (teacher)
8. Parents need to be educated about what really is important for their children to learn in preschool. (teacher)
9. I'm not sure what you mean by teaching children to think creatively. Everybody thinks. (assistant teacher)
10. I don't remember learning any of this when I was working on my certificate. (assistant teacher)

Initially, the author gave each interviewee a brief overview of the practicum plan. The responses listed above represent ten of twenty-five interviews and reflect the general tone of beliefs and feelings of the entire group. The interviews revealed that creativity and teaching for creative expression is generally regarded as the byproduct of other teaching-learning strategies with limited emphasis on this area as a specific goal.

C. ANALYSIS OF THE CAUSES

Creativity experts agree that the term "creativity" defies a single definition. Whether it is process or product continues to be a point of issue. Recognition has been given to human endeavors in all areas - the arts, science, literature, leadership, gardening, cooking, sewing, and design of all sorts, to name a few. The criteria used to determine the creative nature of an object or an idea is often unclear. However, there is general consensus that all individuals have an innate capacity for creative expression. Bloom (1985) stresses that natural creative traits require careful nurturance if they are to be expressed to any extent in a person's life. Knowing this, we can comprehend the ramifications of what appears to be the systematic suppression of these natural abilities throughout the educational system at all levels.

According to Grays and Young (1975), the suppression of natural creative expression occurs as early as infancy when the structure of a child's intellectual and emotional character begins to be influenced by the expectations of the parents. In view of this, reasons for the problem may have roots in early childrearing practices. For many children, independent thinking and decision making is discouraged and often punished, while obedience and conformity are reinforced at home as well as in school.

Another possible cause is described by Gordon (1968) as the individual's need to experience closure in order to reduce the tension created when an issue is left unresolved. This tension places more energy on finding a single right answer. Gordon suggests that these behaviors originate in early conditioning as the child is taught to value neatness and good behavior, or doing the "right thing." These conditioned responses are then assimilated into the child's early thinking and learning patterns. As a result, an unconscious drive develops to solve problems or to complete tasks in certain ways in order to validate performance, thereby reducing stress and facilitating a feeling of well being. The focus on tension reduction tends to stifle the internal creative process, and results in early closure around the most obvious solution available.

D. THE RELATED LITERATURE

> Creation is a disturbing force in society because it is a constructive one. It upsets the old order in the act of building a new one. Toynbee (1964)

A new paradigm for education is being activated that philosophically cuts into the traditional debate over what best constitutes education's primary focus, i.e. competency-based instruction, mastery learning, early reading, etc. As society continues to adjust its economic base from industrial to informational, demands

are made for individuals who can function as intuitive, visionary, flexible planners able to solve problems using both creative and critical thinking skills. If educators continue to perceive the primary goals of education to be the accumulation of facts and skills in order to produce better informed individuals, then mastery of knowledge will continue to be reinforced as the dominant mode of instruction.

Given this new awareness, an attitudinal shift in priorities should be made to produce individuals who are primarily able to function as creative thinkers and planners. Kogan and Pankove (1977) state that educators must look closely at what is happening and strive to develop new ways of structuring learning in order to help students become "producers rather than consumers of knowledge." A similar concern expressed by Quattrocki (1974) contends that educators should readdress their goals and begin to capitalize on the natural capacities of children, as opposed to allowing them to "uncritically absorb information."

In the field of infant and early childhood education, those sensitive to the need for a redefinition of education are becoming vocal critics of the developers of toys and learning materials that train young children to solve problems by mentally converging for one correct solution as a reward for reaching a predesignated goal.

Kitano (1982) suggests that by the time children enter kindergarten they have already been conditioned to focus on right-response behaviors.

Grays and Young (1975) also indicate that early conditioning in a child's life can produce highly adaptive behaviors. During the school years, children are often conditioned for passive behaviors and learn to restrict their thinking capabilities in order to gain the approval of their teachers. Klein and Birrens (1973) suggest that creativity is the opposite of conformity and to the extent that conformity is diminished is the degree to which creativity is expressed.

According to Shallcross (1981), an understanding of how individuals learn is essential to establishing a climate that supports creativity. Similarly, Kitano (1980) suggests that "teachers are largely ignorant of what children know and their ways of coming to know." She stresses the importance of evaluating the understanding that teacher trainees already have about how young children learn, instead of assuming this knowledge is understood.

Davidman (1981) infers that the criteria for judging successful training of preschool teachers should include an assessment of the extent to which each trainee values planning an environment of inquiry and discovery and knows what to do to unleash creative behaviors within

this environment. Davidman stresses the development of student awareness for knowing when to "get out of the way" in order to allow the child's natural creative expression to emerge. Trainers are encouraged to help students identify personal psychological barriers that may interfer with their ability to be creative teachers.

An expanded view of creativity suggests that these behaviors are present in animals as well as humans. Maslow (1970) states that humans and animals both interact and adapt to their environments in creative ways. However, humans are not content to stay at the adaptation level, and strive to act upon their environment to change and create whatever is needed for a higher expression of their needs. By exerting changes in the environment, humans alter themselves, and it is this highly creative ability to reorder the self, whether to the understanding of a single concept or to a new way of viewing life, that brings about new creations and personal growth.

Both Torrance (1964) and Guilford (1967), noted psychologists in the field of creativity and cognition, strongly endorse the idea that creativity can be taught and should be totally integrated into the school curriculum, as opposed to being left to chance occurrence from interested teachers. When special attention is given to creativity in the class instruction, students tend to reach higher levels in their thinking and problem solving abilities (Torrance and Torrance, 1972).

The issue of creativity is more than planning creative curriculum activities, according to Dettmer (1980) who suggests that benefits for children are often marginal and fragmented because many teachers do not understand how to incorporate creativity into their classroom teaching strategies.

Teachers whose personalities mitigate against creativity tend to resist building these behaviors into their instruction. This psychological war between inner and outer personality dynamics was observed as far back as the early 1950's by Henry (1959) who claimed even then that the unconscious needs some teachers have to dominate and control can interfer with their students' development of creative behaviors. Findings from the research of Glover (1982) also suggests that the personality styles of teachers tend to correlate positively or negatively with the quality of education delivered to and received by young children.

Research on hemispheric specialization and the implications of whole brain research appears to be another influencing factor on how researchers and educators are beginning to differentially view the human learning process. Understanding the left and right sides of the brain, and the specific learnings that result from each side has created an awareness that most school learning programs strongly support the left brain which controls

factual and analytical reasoning, over the right brain which relates more to intuitive reasoning (Rubenzer, 1985). Since it is known that children vary in their learning styles, knowledge of why some children fail and others succeed is being explained away from traditional test score analyses (Samples, 1984).

The recognition of the first years of life as critical times for the refinement of a child's whole brain system is emphasized more than ever. Research by Shannon and Rice (1981) documents the importance of teachers knowing how to help children think holistically instead of promoting mastery of learning primarily at the factual levels. In view of the critical nature of early brain integration, Shannon and Rice stress parent education in a child's early years, and the availability of creative materials and games for parent-child interaction at home.

CHAPTER III: ANTICIPATED OUTCOMES AND EVALUATION INSTRUMENTS

A. STATEMENT OF GENERAL GOALS

Juntune (1979) suggests that the key to creative instruction is the ability to take curriculum and use it as a tool for the development of creative behaviors.

This practicum was designed to prepare both instructor and students to become creative thinkers and planners. One of the general goals was to design course inclusion techniques for an established college course. The particular type of course was less important than the methods used in an attempt to design a skeletal format for college courses. Another general goal was to cultivate effective facilitator group processing skills for teaching creative skills to college students.

B. BEHAVIORAL EXPECTATIONS

1. Eighty percent, or more, of students would demonstrate increased growth in one or more of the four divergency factors of the Torrance Tests of Creative Thinking: fluency, flexibility, originality, and elaboration.

The Torrance Tests of Creative Thinking (TTCT) subtests (figural/visual perceptual and verbal), were administered for pre and post assessment. (Appendices E & F)

2. Fifty percent, or more of students would increase their knowledge base and develop more positive attitudes for creativity and the acquisition of creative thinking skills.

   An item analysis of specific questions on an Evaluation Survey instrument was prepared by the author. (Appendix D)

3. Eighty percent, or more, of students would demonstrate the written ability to apply creative problem solving techniques to the organization of their planning assignments.

   Subjective evaluations of the students' written work by the instructor determined successful application of the creative thinking principles.

C. DESCRIPTION OF EVALUATION INSTRUMENTS

Several evaluative instruments were installed for this practicum work: (1) The Torrance Tests of Creative Thinking (TTCT), (2) An Evaluation Survey, and (3) Subjective Observations and Anecdotal Records.

1. The Torrance Tests of Creative Thinking

The Torrance Tests of Creative Thinking measure a combination of verbal, left-brain abilities, and non-verbal right-brain visual perceptual abilities. Two nonverbal (figural) subtests (circles & lines), and two verbal subtests (product improvement - form A and product improvement - form B), were selected. The subtests were administered at the beginning and end of the semester, one verbal and one figural each time. The subtests assess four divergency thinking factors - fluency, flexibility, originality, and elaboration. (Appendices E & F)

The author referred to the TTCT manual for guidance. The directions included the following:

-Ten-minute time allowance for each subtest. (verbal & figural subtests were given on separate class dates.)
-Encourage students to label figural drawings.
-Emphasize that responses are not graded and no previous knowledge is required.
-Emphasize that creativity tests are not achievement or IQ tests.
-Avoid referring to instruments as "tests" with students.

2. Evaluation Survey

In an effort to assess overall reactions to the plan, several weeks before the end of the course students were asked to evaluate the creative thinking techniques on an evaluation survey developed by the author. The survey consisted of twelve evaluative statements and six sentence completions for eliciting open-ended responses. (Appendix D)

After completion of the implementation plan, the data from the TTCT subtests and the Evaluation Survey were analyzed and prepared for inclusion in the final report.

3. Subjective Observations & Anecdotal Records

Data from the author's observations were compiled and reviewed in conjunction with the results from the evaluation instruments. Standards for success were determined by the results extracted from face-to-face interactions, observed attitudes and behaviors, and extemporaneous communications during class time.

The Evaluation Survey and the cumulative observational records were given careful attention by the author. The checklist responses, the narrative sentences, and the anecdotal records, were compared and analyzed for patterns of consistency. An overall evaluative judgment was determined with considerably more weight placed on these two forms of assessment as opposed to equal weight for the results from the creativity tests. The author believes that the ten-minute time-on-task allowance for each subtest was far too restrictive for an optimal sampling from students who tend to function best without rigid time constraints.

CHAPTER IV: SOLUTION STRATEGY

A. DISCUSSION AND EVALUATION OF SOLUTIONS

While it appears that educators differ in their style of addressing creative education issues, they tend to agree philosophically with Torrance (1970) that a direct relationship exists between a teacher's own creative development and the students' creative development. It is, therefore, viewed as imperative that teachers become channels through which students can uncover their innate abilities.

Although Perkins (1984) is critical of limited, "special purpose" methods of instruction in the promotion of creative thinking skills, he admits that effective delivery system strategies are being advanced in education. Perkins suggests that far too little attention is usually given to the importance of practice time to exercise newly-acquired thinking skills, and this can result in short-term gains and transfer of skills which tends to mitigate against meaningful behavioral change. In view of this, he expresses the belief that training programs are less effective when they fail to extend themselves beyond a single seminar. He favors self-contained courses in which heavy focus is placed on the development of

creative thinking skills with substantial time-on-task practice built into the course.

In the author's setting, planning for attitudinal and behavioral change is a major goal in the teacher training program. Experience has shown that the degree of progress can often be measured by the extent to which students become physically and mentally immersed in guided, frontline classroom experiences on a daily basis for several months.

In support of the workshop method for the dissemination of information on creative thinking techniques, Feldhusen & Treffinger (1979) suggest that self-contained courses provide the best environment for motivation and effective training, but since college courses of this type tend to be elective, few teachers usually choose to take them. If the goal is to reach large numbers of teachers, Feldhusen & Treffinger suggest that inservice workshops are one of the best ways to stimulate teachers interest in creativity. As part of a funded project, within a geographical range of three cities, they presented two-hour workshops to teachers at various schools. The sessions consisted of monitored slide presentations, visual displays of instructional materials, and the distribution of a book on creativity (published by the presenters).

The author noted an interesting pattern in the comments

gleaned from the workshop evaluations. Some of the remarks were: ...teachers would have liked more time overall ...more time for questions and discussions ... would have preferred to have received the book prior to the session. Here again the importance of time is stressed - time to know, to absorb, to question, and to practice - as voiced by the workshop participants. While questioning the worth of the project, the author speculates the rationale for these "spot appearances" may have been based upon the idea that "some exposure is better than none." Further speculation could be made that the presenters felt the book would serve as self-instructional support material that would build upon the workshop. The predominant goal was probably to tap awareness without any real intent to reach deeper levels.

Singular use of short-term workshops, self-instructional materials, guest speakers, and audiovisual presentations, are probably the least effective and most limiting ways to plan for any substantial long term gains, but they can serve as aspects of a greater plan to provide and stimulate appreciation for the subject of creativity.

A more in depth inservice workshop design by Juntune (1979) included a guided theory and practice plan with plenty of time-on-task experiences for three years. The training format consisted of a series of hierachical continuums from Level I to Level V. Teachers learned to

identify and practice creative thinking techniques as they progressed from the lowest to the higher levels, which included the ability to document a number of creative traits in individuals, and then apply this information to the development of screening techniques for use with their students (Level V). After the initial three-year period, Juntune's program advanced to include followup training through a graduate creativity course, and regularly scheduled update sessions.

The author applauds the quality of this work and realizes the full impact that comprehensive training in creative education can have on teachers. These ideas may explain why many wholesale school system adoption projects fail to obtain the desired results. These projects often lack comprehensive followup procedures with emphasis on close monitoring of attitudinal changes and skill growth after the initial instructional sessions.

B. DESCRIPTION OF SELECTED SOLUTIONS

The selected plan required the author to take on the dual tasks of personal skill development and student enrichment at the same time. In view of the two-fold nature of this project, several options were entertained.

Originally, the workshop approach was considered to be an attractive practicum option. It was perceived that an in depth workshop project could have positive

ramifications as a strong initial attempt to address the concerns that faculty and staff expressed earlier in this report. However, with limited exposure to creative education strategies, the author felt that work with these techniques in a classroom group setting over a period of time would better facilitate the personal confidence that is important in a leadership situation where the goal is to bring about attitudinal and behavioral change in others. Therefore, a course alteration plan was decided upon.

The author decided to become an active participant in the learning process while planning creative experiences for the students. The overall results of this plan have clearly shown that the project would not have been as successful without the instructor-learner approach.

Following is a brief outline of the creativity plan:

I. The Torrance Tests of Creative Thinking (TTCT)
- -Figural and verbal subtests
- -Divergency factor areas: fluency, flexibility, originality, and elaboration

II. Class Climate
- -Facilitator-type role for instructor
- -Modeling of creative thinking behaviors
- -Techniques for evoking creative behaviors
  - deferred judgment
  - free expression of ideas
  - freewheeling
  - hitchhiking or piggybacking
  - incorporation of students' ideas
  - divergent questioning skills

III. Ideation (Brainstorming) Sessions

Special focus on reinforcement of the four divergency factors: fluency, flexibility, originality, and elaboration.

-Lesson plan activities (specific to course).
-Special projects (specific to course).
-Small support groups.

C. REPORT OF ACTION TAKEN

The original structure of the course remained intact throughout the semester in an effort to meet the goals and objectives already set for the course. Procedural DEVIATIONS occurred when the ideating sessions required more time. The additional time was valuable in an effort to devise ways for students to begin to break out of conventional modes of thought. Both serious and humorous ideas were encouraged with the understanding that "silly" ideas are known to reflect an outcropping of creative expression.

(The terms facilitator, instructor, and author are used interchangeably in this practicum report.)

It was obvious from the beginning that the author would have to assume, to an even greater degree than expected, the role of instructor and FACILITATOR, and, in addition, become agile enough to move in and out of these roles and to know when to do so. TIMING is important in all teacher-learner encounters, and it is a key factor in situations where there is an intent to motivate students

to switch back and forth from their traditional ways of thinking and responding.

A GAME atmosphere was valuable during the ideating sessions. The noise level of the class was higher during these times as students became excited and would speak out at the same time. The author as facilitator needed to regulate these behaviors, and at the same time encourage students to openly express their ideas, especially the low verbal students who are normally reluctant to speak out in class. The group ideation sessions were enjoyable for the entire class, and as they deepened in quality, they appeared to continue on their own momentum. An effort was made to allow more time for new ideas to flow beyond the initial responses. PROBING was a useful tool and it gave the students the opportunity to activate their thoughts in similar or different directions. Ideas for planning came forth through probing that never would have been discovered if the students had been left to plan by themselves. FREEWHEELING refers to the generation of many ideas (same as brainstorming), and occurs when students build upon the ideas of others. The author found this to be an especially effective group ideating process for adult students who seemingly have been locked into limited thinking patterns for many years.

Before every brainstorming session the instructor would explain the exercises and suggest ways for the students to respond. Repeating the directions before each session was viewed as valuable to the success of the exercises. Shallcross (1981) contends that productive thinking comes naturally to young children, but for adults who have developed inhibitions to this form of thinking, repetitious drilling is necessary.

During each ideation session students were encouraged toward fluency, flexibility, originality, and elaboration in their responses. By probing and encouraging the brainstorming to reach deeper levels, the facilitator was able to suggest the production of original ideas - "We've exhausted the usual ways, lets think of something new and different." Ideas already given were utilized and students were encouraged to elaborate upon these. This included the ATTRIBUTE LISTING strategy where components of one idea or object are examined to the fullest extent, thus leading to an entirely new direction as the ideating takes on different dimensions.

The plan of action for creative thinking in the author's setting included planning for (1) Classroom Climate, (2) Value Orientation, and (3) Instructional Activities. These three phases were implemented at the same time, with emphasis placed on one of the three at any given time.

The goal was to influence the group atmosphere in such a way that it was conductive for creative behaviors to flourish. Emphasis was placed on establishing a trusting, non-threatening relationship with the students. This needed to be done to establish group trust and did not require initial focus on individual trust. In the author's situation, the students needed to have the feeling that the instructor was a "safe teacher."

Structuring these behaviors in a college course that results in evaluation and grades for the students requires special effort. During the first week of the semester, as the course was outlined to the students, they were also informed of the criteria for evaluation and grading, and the expectations and standards to be met for successful completion. The quality of work and the motivation to perform at high levels throughout the semester was reinforced as important criteria for success. Attendance was discussed and it was stressed to the students that gains in learning and personal growth within a methods course cannot be captured from a classmate's notes.

There was a brief discussion during the first week of the ideation techniques. The author purposely kept this discussion brief in order to let the students know that these sessions would not directly relate to evaluation

and grades. They were told that attendance patterns would be noted, regardless of the instructional format for the class.

PHASE II: VALUE ORIENTATION

In order to provide students with some foundation upon which to view creativity and creative thinking skills relevant to their development as creative teachers, attention was placed on a discussion of the reasons for the inclusion of the plan into the Child Development course.

Several weeks into the semester preparation began on the first of two major projects, and the author was able to integrate the creative thinking techniques into the planning class sessions for these projects.

Earlier, the author had discovered an effective way to catch the attention of the students and guide them to think more about the subject of creativity. A DISPELLING OF MYTHS technique was used and statements about creativity were thrown out to the group and a show of hands was called for before a discussion took place. For example, statements like "Creative people usually act weird," - true or false. "Only people who are good at music or art are creative," - true or false. This technique generated some intense pro-con discussions and stimulated more careful thought about creativity. The author always concluded these brief encounters with factual information.

Actually, these tactics were spontaneous and exciting for the students and the instructor, but required far too much time within the parameters of the course to be taken further.

PHASE III: INSTRUCTIONAL STRATEGIES

The third phase was built upon the first and second phases and involved activities in the classroom designed to activate creative thinking. Creativity experts stress that in teaching for creativity, it is important to build new procedures upon those that came before. The main focus of this plan was to saturate the course with as much divergency as possible. Basic to all ideation strategies is brainstorming or ideational fluency, and other tactics can be built upon this technique. (Appendix C) Brainstorming has been credited as being "more uniquely creative than any other type of behavior involved in the creative process," by Torrance (1973), and it was on the strength of these claims that brainstorming was selected as the primary ideation technique for this project. (The terms ideation, ideation fluency, brainstorming, productive thinking, and divergent thinking are used interchangeably in this report.)

As with most teaching techniques, the author discovered that learning to facilitate brainstorming and hypothesizing techniques required "on the job training." While using these techniques earlier in the semester to

help break down mental barriers to this type of instruction, it became apparent that given the course constraints and time limitations, full concentration on this technique alone would be enough to qualify this work as a successful breakthrough point for the inclusion of creative thinking strategies into a college course.

The following list consists of instructional support ideas that were assembled from the author's anecdotal records collected throughout the semester:

1. Select topics for the brainstorming sessions to which the students can easily relate.
2. Proceed from simple brainstorming topics to more complex hypothesizing problem solving exercises. (Appendix B)
3. The facilitator should model the desired behaviors at all points in the creative process.
4. Encourage student initiation and allow for facilitator-to-student and student-to-student interactions.
5. The facilitator should probe and guide the students to include elements of fluency, flexibility, originality, and elaboration in their responses.
6. In order to allow time for smooth closure to the sessions, the author found it necessary to

closely monitor time without appearing to do so.

7. Because this project was involved with behavioral change, it was important that processing time did not end with the students' responses on the blackboard. These ideas needed to be categorized in some way for practical use. If time ran out, the ideas were copied for later use.

8. Whenever possible, the students were encouraged to form diad or triad groupings to plan activities. They would reduce the generated list to a few practical ideas. If time ran out and the groups had to disperse before completing the task, followup time was planned for the individual groups or the total class. Allowing time to generate, structure, and categorize ideas for practical application was important to finalizing the divergency process.

The author believes CLOSURE to be an important part of teaching for creativity. Many times students would place closure on their work immediately after the first ideas that came to mind. They were instructed to narrow their ideas to one or two for specific application, but were encouraged to remain open-ended to allow for expansion. Relevant to this task was the ability to know when to do one over the other.

Assuming that exercises in flexibility reduce limited thinking, the author purposely planned situations that would address this area. Flexibility, as a divergency factor, refers to the ability to transfer thinking from one category to another. With practice in brainstorming for short periods of time, students were encouraged to expand upon their ideas in one area and relate them to other areas. For example, an idea for language arts might spark a related idea for music or art. The author discovered that the early generation of a greater number of ideas later enabled the students to connect one idea to another much more efficiently and permanently with probing and reinforcement from the facilitator.

The author terms this process "creative deviations" and although this procedure is known to teacher trainers, the inclusion of in depth brainstorming tactics may be a new addition. It validates both productive and analytical thinking, and encourages students to trust their own ability to think deeply and broadly. It discourages early closure and allows for more creative expression as it enables students to think openly about ideas and concepts that often turn out to be highly creative and original.

CHAPTER V

RESULTS, CONCLUSIONS AND RECOMMENDATIONS

A. PRESENTATION AND ANALYSIS OF RESULTS

This practicum was designed to improve the creative thinking and problem solving skills of college students. The course-alteration method was selected and incorporated into an established Child Development course. There were eighteen adult Child Development majors in the course. The methods-type course was chosen because by nature it is structured to combine theory and practice. Three objectives were established to accomplish the general goals stated in Chapter III.

Objective 1: Eighty percent, or more, of students would demonstrate increased growth in one or more of the four divergent thinking factors assessed by the TTCT.

In order to familiarize the students with the basic elements of creativity, figural and verbal subtests of the Torrance Tests of Creative Thinking were administered early in the semester. One of the author's interests was to observe student reaction to a new type of paper and pencil task that required no previous learning and enabled them to respond free of critical evaluation. (Appendices E & F)

The students were allowed ten minutes to work with each subtest. The verbal and figural tests were given on separate days. A game-like atmosphere was carefully

established and students were repeatedly reminded that these exercises would not influence their course grade in any way.

Students were also asked to create for themselves a code name that would identify their papers. They were asked to write the code name in their notebooks for future reference. This procedure was included by the author to ease any of the students doubts concerning the nature of the creativity "games."

Because these materials were included within a traditional course in which students are evaluated and graded for their semester's efforts, the author made special effort to call the creativity subtests "games" instead of tests.

The plan was to continuously provide students throughout the semester with experiences in the four divergent thinking factors of the creativity tests. Fluency, flexibility, originality, and elaboration were focused on in all of the brainstorming sessions. As instructor-facilitator, the author attempted to guide these sessions so that the level of fluency responses deepened and became more flexible. The more unusual and original responses tended to come later as the students exhausted obvious ideas and began to dig deeper. Silliness and humor were encouraged and helped students to entertain more unusual ideas. Often these ideas had the redeeming

quality of being both unusual and functional at the same time. It is possible that these ideas would not have been considered in typical class group interaction where deeper penetration into thinking abilities tends not to occur because of limited time given to these behaviors.

The post figural and verbal subtests were given to the students a few days prior to the semester's end. The author had originally planned to do this several weeks earlier to avoid any connection with final grading. Actually, the decision to wait was much better because students had completed all assignments and had a general idea of what their course grade would be.

The testing conditions for the post test understandably differed for the initial testing session. Students and instructor were quite familiar with each other. Any residual feelings that the "games" would affect grades were probably dispelled by this time. Instructions given by the author were now more varied and students were directed to recall the brainstorming sessions and were reminded to "be as creative as possible." They were directed to aim for a variety of responses that were different from each other (flexibility), and were encouraged to make combinations on the figural tests.

The author believes that these additional directives may have influenced the post test results. However, these guidelines were included in the test manual. Overall

evaluative results are seen in Table 1, and are summarized as follows from pre and post subtest patterns:

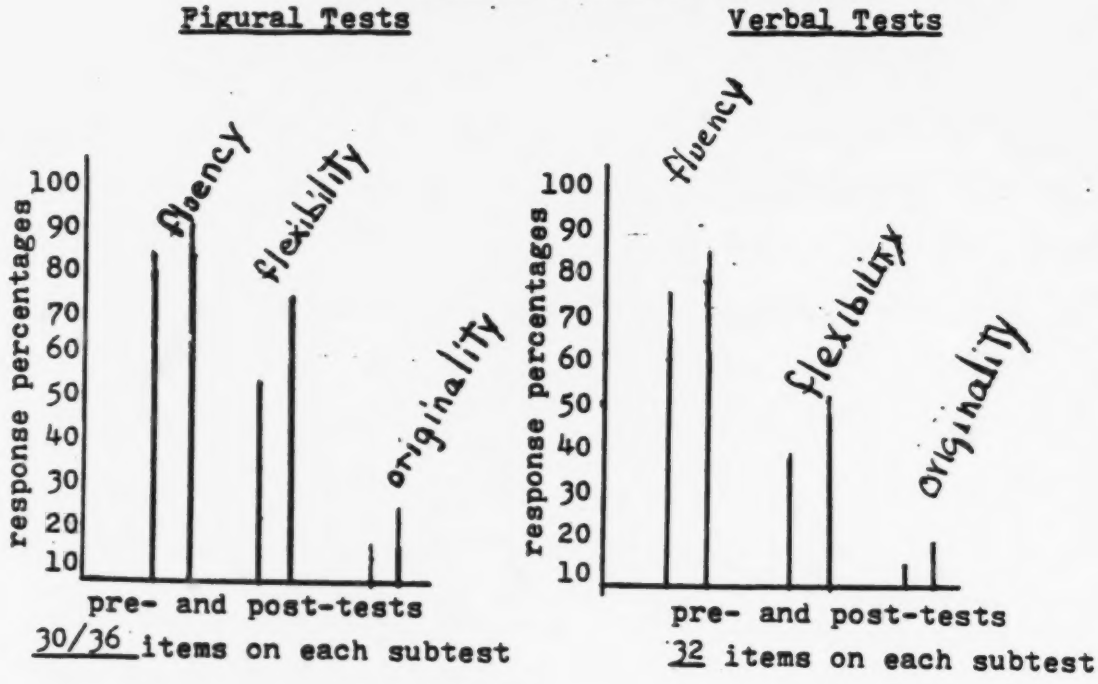
1. Highest gains from pre- to post-test scores were found in the flexibility and originality factor areas. Fluency results remained relatively stable through the pre and post tests.
2. The figural circles subtest showed broader gains at the post test period. Combinations (joining circles together) were strong indicators of originality and elaboration.
3. A pattern of responses was noted: Students who scored highest on flexibility and originality tended to score lowest on fluency. (Note that flexibility and originality require broader thinking skills.) There was one exception - a student who scored high on both fluency and flexibility for both tests. The author's records indicate that she expressed enjoyment through bodily gestures and verbal comments during the tests.
4. Students were observably more comfortable and relaxed during the post test session. This may be a noteworthy factor in assessment of gains.
5. On the pretest, only two students received recognition for originality. Seven students were credited for original responses on the post test.

Originality scoring is ultimately based on the subjective judgment of the tester, according to the tester's interpretation of the guidelines that are outlined in the TTCT manual. It is a difficult factor to analyze; however, the fact that over one-third of the class was able to reach this level was viewed as an indicator of success for the creativity tests.

An assessment of individual raw scores indicated that all of the eighteen students increased in one or more of the divergent thinking factor areas; therefore, this objective was completely met. The particular factor area in which the increase occurred was individual for each student.

Table 1

Results of TTCT Creativity Tests



Elaboration scores are derived from subjective interpretations of responses based upon Torrance's manual guidelines. An obviously difficult area to assess from the culturally-specific language used by the manual's developer, the author examined the tests carefully and decided that the elaboration factor area could only be marginally addressed in this pool of tests. This accounts for the absence of information on this factor area in the report.

Objective 2: Fifty percent, or more, of students would increase their knowledge base and develop more positive attitudes for creativity and the acquisition of creative thinking skills.

An evaluation survey prepared by the author was given to the students to complete at the end of the semester. (Appendix D) The survey was scheduled to fit into a fifteen or twenty-minute class time allowance. Part A of this instrument was designed to complement Part B. The decision to keep the instrument short was based on the fact that students lose interest quickly on evaluation-type tasks, especially when brief answers need to be written out, and the sentence stem items required thinking time. In the past, the author has observed that students exhibit low interest in written responses and will often leave these areas blank. In an effort to secure optimum participation from the students, the author asked them to carefully take

the time to respond to all the items and reminded them how helpful their comments would be to the instructor. It was suggested that the students remain anonymous, and the completed surveys were collected by a student volunteer to guarantee this.

An item analysis of the evaluation survey, Part A, reveals overall positive reactions to the creativity training. The majority of responses were in (SA) strongly agree and (A) agree categories. The responses to Part A of the survey are summarized in Table 2.

Table 2

EVALUATION SURVEY

Items: Statements:	SA	A	U	D	SD
A1	12	5	1	-	-
A2	12	6	-	-	-
A3	13	4	-	1	-
A4	17	1	-	-	-
A5	14	4	-	-	-
A6	18	-	-	-	-
A7	14	3	1	-	-
A8	14	4	-	-	-
A9	18	-	-	-	-
A10	12	4	-	2	-
A11	2	13	3	-	-
A12	10	4	2	2	-

Number of Students: 18

The (U) undecided and (D) disagree responses were noted and validated some of the feelings the author had that a small number of students would have preferred the "regular" instructional methods to which they were more accustomed. There were students who were reluctant to share ideas and tended not to interact with their classmates. If these are the same students, the

suggestion that they failed to understand the activities infers to the author that a personal decision was made not to listen for understanding.

The sentence stem items of Part B revealed mixed results. The expected outcome was a greater range of definition-type responses from the students in relation to their understanding of creativity. Instead of definitions, many responses were affective and centered on feelings, eg. "Creative thinking games "are fun to do and are helping me to learn more." Creativity is "fun and I enjoy it as much as children do." Several other comments were - I feel that I "can now be a more creative teacher. I feel I understand myself better ..." The brainstorming activities "let me know that I could think much better than I have been doing in the past, and that it just takes more time."

The author felt the design of the evaluation survey needs to be revamped, and the wording of the various items reassessed. However, with attempts to correlate the anecdotal records with the survey, there was evidence that the classroom climate and the positive tone of the group proved to be fertile ground for the techniques to take hold.

Objective 3: Eighty percent, or more, of students would demonstrate the written ability to apply creative problem solving techniques to the organization of their planning assignments.

The author's notes and the written evaluations of the students' written work were the primary measure for success. The general consensus was that there was substantial evidence in the written work that the students were benefitting from the ideation exercises. The author observed that the best work - well organized with carefully thought out ideas - came from the small group efforts of several students working together.

The brainstorming and hypothesizing formats that are outlined in Appendix B were utilized primarily for organizing lesson plans and special class projects that required students to carefully think through their ideas. In the past, students in this course have completed these assignments satisfactorily, but the author often observed their frustrations and the extent to which they became dependent on prepared curriculum materials. In their lesson plans, the procedural accounts of what they did and the ways they stimulated the children's interests, were usually predictable responses. As a result of the creativity exercises performed during group preparation for these projects, the author observed considerably less tension in the students, and they were more willing to share ideas with one another. Several times the author observed a student voluntarily helping to guide another student's thinking about an activity plan. This was

viewed as a very positive sign that the students were internalizing or "stretching minds," a term used by Shallcross (1981) in explaining techniques to evoke creative behaviors. In addition, they were beginning to better facilitate their own learning process with minimal dependency on the instructor or on prepared curriculum materials. This self-facilitating behavior was seen by the author as a key measure of success for this project.

Although attendance was not monitored specifically for this practicum work, the author's records indicate a low overall absence ratio for the evening course that met twice weekly. Quite possibly a "Hawthorne Effect" prevailed for the entire semester as the instructor and the students mutually expressed to each other that they felt something special about the class. Obviously the activities generated interest and excitement and this set a tone that was captured by the students and permeated the entire atmosphere.

B. CONCLUSIONS

The results of the TTCT subtests suggest that students found it easier to express thinking complexity with the right brain, visual perceptual tasks. While observing behaviors during the verbal tasks, it appeared as though the mechanics of transferring thoughts to

writing interfered with quick and creative reactions to the ideas. This may reflect vocabulary limitations. It has been observed that many students have been conditioned to factual learning from their elementary and high school years. The author noted, however, that the verbal brainstorming exercises began to reflect better thinking skills on the students' part as the semester progressed. One of the evaluation survey comments was "...were more fun because we didn't have to write anything down." English and vocabulary continue to be the academic skills with which many community college students feel least comfortable. Although reports indicate that these occurrences are present across the educational spectrum, and a variety of reasons have been given from the influence of television to inadequate teacher training, the relationship of English and writing skills to the expression of creativity have only been marginally honored over teaching the mechanics of English. The reality of the author's creativity project disclosed that students, as a whole, were much more comfortable with the figural, non-verbal exercises.

The author suggests that these findings reinforce the idea that much of the human creative potential in our society is left dormant and untapped because primary value continues to be placed on tasks that are evaluated

by paper and pencil methods. This relegates all other creative behaviors to much lower status and they often remain unacknowledged.

Hopefully, the ideas presented in this practicum project will someday prove to be the norm in educational practices. There are movements across the country, and throughout the world, that have specifically endorsed a more comprehensive approach to education by incorporating aspects of whole brain learning and human potential theory.

It is encouraging to note that even within the author's immediate community college setting there appears to be a growing awareness that other ways are needed to view students and their capacities to learn, think, and function beyond the traditional assumption that students today are less bright than ever before.

C. RECOMMENDATIONS

There is no cookbook approach applicable to the nature of this subject area, and the author directs the reader away from thinking that packaged creativity ideas are enough. This practicum work does not endorse a quick strategy approach, and there is danger in thinking it could do so. Certainly young children benefit from creative activities, but it is the total environment, including the sensitivities and behaviors

of the teacher that determines the extent to which the children activate the full range of their creative abilities. When duplication is considered, the author wishes to stress that in order to teach creative thinking skills, an individual must internalize a deeper and broader understanding of the different facets of creativity and then address each of these areas separately. Books, manuals, and articles are more readily available as the movement to incorporate creative and critical thinking into the classroom continues to expand.

Introspection is paramount for anyone attempting to teach creativity. Early closure is destructive. One remains a novice for a long time. To develop a list of curriculum activities for young children without monitoring the behaviors of the teacher leads to superficial effort. Constant check points are important. As mentioned earlier, programs without close monitoring and guidance are often adopted by school systems with high hopes for success. However, without carefully guided followup, as opposed to sporatic check points, questions remain unanswered, frustrations increase, and teachers tend to return, in part or totally, to old familiar ways of doing things.

While describing techniques to handle the fear that often accompanies efforts to change some established

behavior, Blanchard (1985) expresses the idea that "any new technique creates its own level of dissonance as old and new habits interface and belief systems battle one another. Guided support is necessary to reinforce human effort through change."

Ideally, it would be desirable to assemble the same students for another class, and with the additional time assess the gains and transfer of learning on a broader scale.

Along with the statement, "To know is one thing but to be able to translate knowledge into behavior is another," Blanchard (1985) proceeds to describe three levels of change in human behavior - knowledge, attitude, and behavior. Knowledge, according to Blanchard, responds faster to change than attitudes, which are more difficult because their source is emotional. Even when knowledge and attitude are in close agreement with each other, the third level, behavior, can be resistant to change. The author feels confident that the creativity plan as explained in this report, has positively influenced the students at all three levels of human behavioral change. However, reality dictates in this experience as in others when basic human dynamics are stirred for growth, and it is understandable that there will be varying degrees of individual psychological acceptance that will ultimately determine

the final application of the creativity principles in the students' teaching behaviors.

The author recommends the incorporation of creative thinking and problem solving techniques into established college courses, especially in the field of Child Development because of the direct transfer effect these skills can have on adult-child relationships. Adults who value creativity are quite naturally predisposed to value creativity for children.

If duplication is the goal, the author reaffirms to the reader that the creative process begins with the teacher, not the children. Using a course alteration method is highly recommended. The author suggests that workshops are valuable since they can reach a variety of individuals, but in order for instruction to be really effective, the instructor should focus initially on self-evaluation and modeling techniques.

Establishing a supportive climate is by far the most important aspect of teaching for creativity. In fact, the author speculates that students would tend toward creative behaviors quite naturally even without specific instruction if the classroom climate is well established. The Values Orientation and Instructional Strategies, as outlined in Chapter Four, would have proved ineffective without a receptive classroom atmosphere.

The following ideas worked well in this practicum and should succeed with learners of all ages when the purpose is to evoke creative behaviors:

-Use as much direct eye contact with the group as possible.

-Keep voice well-modulated in a relaxed tone.

-Encourage individuals to get to know each other soon after coming together as a group.

-Encourage open discussions by assuring the group that there are no wrong answers.

-As leader, strive to balance the facilitator role with traditional didactic teaching behaviors.

-Carefully choose the words you use in class since they can have a powerful influence on the thinking behaviors of students (Bailis and Hunter, 1985).

D. DISSEMINATION

Plans have been made for presentations to Child Development Center personnel at several of the City College campuses. The course alteration approach, as outlined in this practicum, will be shared with instructors who have expressed interest, and the creative instructional techniques will be incorporated into all of the author's Human Development and Education courses.

Further consideration will be given to a collaborative effort, tentatively set for Fall, 1986, for a National Association for the Education of Young Children (NAEYC) conference presentation with several educators from across the country who have a shared interest in creativity and gifted education.

REFERENCES

Atwood, B. S. (1975). Helping students recognize their own learning styles. Learning, pp. 73-75.

Bailey, D. B. & Leonard, J. (1972). A model for adapting Bloom's taxonomy to a preschool curriculum. The Gifted Child Quarterly. 11, 97-103.

Bailis, P. & Hunter, M. (1985). Do your words get them to think? Learning, p. 43.

Blanchard, K. (1984). Fatal Flaw. Savy, pp. 11-13.

Bloom, B. (1976). Human Characteristics & school learning. New York: McGraw-Hill.

Bloom, B. (Ed.). (1985). Developing talent in young people. New York: Ballantine Books.

Davidman, L. (1981). The use of creative teaching sequences in pre-service teaching education. Journal of Teacher Education, 32, 22-24.

Dettmer, P. (1980). Improving teacher attitudes toward characteristics of the creatively gifted. Gifted Child Quarterly. 25, 11-16.

Feldhusen, J. F., Treffinger, D. J. & Bahlke, S. J. (1979). Developing creative thinking: The Purdue creativity program. Journal of Creative Behavior, 4, 85-90.

Glover, J. A. (1982). Implementing creativity training of students through teacher inservice training. Educational Research Quarterly, 6, 13-18.

Gordon, W. J. J. (1968). Synetics: The development of creative capacity. Journal of Creative Behavior. 2, 77-87.

Grays, C.E. & Young, R. C. (1975). Utilizing the divergent production matrix of the structure of intellect model in the development of teaching strategies. The Gifted Child Quarterly. 19(1), 290-299.

Guilford, J. P. (1967). The nature of human intelligence. New York: McGraw-Hill.

Henry, G. A. (1959). Creative thought, productivity, and teaching. Psychological Reports. 16, 750-752.

Juntune, J. (1979). Project Reach: A teacher training program for developing creative thinking skills in students. The Gifted Child Quarterly, 13, 461-471.

Kitano, M. K. (1980). Early education for Asian American children. The Gifted Child Quarterly. 10, 20-29.

Kitano, M. K. (1982). Young gifted children: Strategies for preschool teachers. Young Children. 16, 75-88.

Klein, R. L. & Birrens, J. E. (1973). Age, perceived self competence & conformity. Journal of Educational Psychology. 68, 401-410.

Kogan, N. & Pankove, E. (1977). Creativity ability over a five year span. Child Development. 43, 427-442.

Maslow, A. H. (1970). Creativity and personality. Psychology Today. 24, 26-34.

North Central Association. (1982). Commission on Institutions of Higher Education. Kennedy-King College, Chicago, Illinois.

Perkins, D. N. (1984). Creativity by design. Educational Leadership: Journal of the Association for Supervision and Curriculum Development, 42, 18-25.

Quattrocki, G. (1974). Recognizing creative potential in preschool children. The Gifted Child Quarterly, 34, 74-79.

Rubenzer, R. (1985). Left meets right in whole brain thinking. Gifted Children Monthly, pp. 1-3.

Samples, R. (1984, February). Educating the whole person for a whole planet. The Tarrytown Letter, pp. 10-13.

Shallcross, D. J. (1981). Teaching creative behavior. New Jersey: Prentice-Hall.

Shannon, T. & Rice, R. (1981). Teaching holistically in the classroom. Educational Research Quarterly. 10, 56-61.

Torrance, E. P. (1964). Guiding creative talent. New York: Prentice-Hall.

Torrance, E. P. (1970). Encouraging creativity in the classroom. Iowa: Brown.

Torrance, E. P. & Torrance, J. P. (1972). Is creativity teachable? Phi Delta Kappan. 6, 25-28.

Torrance, E. P. (1973). Can we teach children to think creatively? Journal of Creative Behavior, 10, 27-34.

APPENDIX A

KEY DEFINITIONS

CONVERGENT THINKING = the kind of thinking where only one correct answer is possible.

DIVERGENT THINKING = the ability to think of many different ideas appropriate to a situation.

ELABORATION = the number of details provided in any one response.

FLEXIBILITY = the ability to change categories of ideas.

FLUENCY = the ability to think of a number of words or ideas to a particular situation or object.

IDEATIONAL FLUENCY = one type of divergent thinking; the flow and number of ideas that an individual can generate.

ORIGINALITY = the degree to which ideas are unique as compared with the ideas of others in the group.

PROCESSING = the application of cognitive thought to the feelings that are shared about a situation.

BRAINSTORMING FORMAT STEPS

I. STATE AN IDEA, SITUATION, OR A PROBLEM

(Make specific to what the class is currently studying.)

II. STATE THE RULES

-There are no "bad" ideas; no judgments

-Mention everything that comes to mind - don't hold back anything

-Feel free to build on the ideas of other students or the instructor's ideas

-Give yourself permission to dig for ideas that are different or "silly"

III. BEGIN THE BRAINSTORMING PROCESS

(Encourage lots of verbal responses of all kinds. Record the ideas quickly, preferably visually on the board, or on paper. Must allow for easy reference.)

IV. END THE BRAINSTORMING AND BEGIN TO ASSESS THE RESPONSES LISTED (This is "processing" level 1)

A. Count the number of responses (fluency)

B. Make a quick estimate of the variety of responses (flexibility)

C. Note any unusual ideas (originality)

V. CATEGORIZE THE LISTING OF IDEAS IN SOME WAY (This is "processing" level 2)

(Make decisions and isolate the "most practical" ideas for use.)

VI. INTEGRATE IDEAS

(Either individually or in small groups (preferred), assist group to integrate the ideas into their specific planning needs.) (This is "processing" level 3)

THE SCIENTIFIC METHOD OF THINKING

(The Hypothesizing Approach)

NOTE: The steps involved in solving any kind of problem are not so different from problem to problem. Finding answers to problems involve certain basic steps:

STEP I.....IDENTIFY THE PROBLEM.

STEP II.....IDENTIFY "GUESSES" OR "HUNCHES" ABOUT THE CAUSES OF THE PROBLEM.

STEP III.....IDENTIFY HOW YOU CAN SOLVE THE PROBLEM.

(A) Collect information about the problem (accurate facts or evidence).

(B) You may have to reject some "hunches" initially held when more of the facts of the problem are known.

(C) In scientific investigation, "hunches" which seem reasonable after careful consideration become the HYPOTHESES.

STEP IV.....TEST ONE OR MORE OF THE HYPOTHESES. Try out the "hunches" with others, in the classroom, at home, in the community.

STEP V.....SEE WHAT HAPPENS.

Observe carefully, accurately, and often.

STEP VI.....EVALUATE the situation. When you are convinced you have enough proof, DRAW SOME CONCLUSIONS. Make a GENERALIZATION as to an acceptable solution to the problem.

Points to remember...

-Don't jump to conclusions

-Look at the problem from many sides

-Be open-minded

-Don't be superstitious

-Evaluate all sources of information

REFERENCE LIST

Buffington, P. W. (1984). Understanding creativity. Sky. pp. 25-28.

NOVA Cluster 15. (1985). Sparking divergent ability: A source book. NOVA University Ed.D. program in Early Childhood Education. Florida.

Shallcross, D. J. (1981). Teaching creative behavior. New Jersey: Prentice-Hall.

APPENDIX C

DIVERGENT (CREATIVE) THINKING

FLUENCY EXERCISES

ASSOCIATIONAL FLUENCY = Ability to think of words to fit a given meaning or idea.

"Name all the round things you can think of...all the square things...things that make noise."

EXPRESSIONAL FLUENCY = Ability to arrange words to meet given requirements.

"Write a four-word sentence with the first letters T_____a_____r_____n_____." (egs. "Take a rest now," or "Turn around right now.")

WORD FLUENCY = Ability to think of words to fit a structured pattern.

"Think of as many words as possible beginning with the letter Z."

FLEXIBILITY EXERCISES

SPONTANEOUS FLEXIBILITY = Ability to vary ideas over a wide range without restrictions.

"Name as many uses of a brick (fluency) as you can think of that are completely different from each other (flexibility)."

ADAPTIVE FLEXIBILITY = Ability to vary ideas over a wide range required by a given problem or situation.

Given a set of matchsticks lined up on a table, put them together to form four triangles.

ORIGINALITY AND ELABORATION EXERCISES

ORIGINALITY = Rare, infrequent, uncommon ideas.

"What are some unusual ways to use hairpins, scotch tape, peanuts...?"

ELABORATION = Embellishment of an idea or adding detail to something.

"How does a blade of grass look to an ant?" or "How would Thanksgiving look to a turkey?"

DIVERGENT (CREATIVE) THINKING - continued

ATTRIBUTE LISTING = Ability to break a problem into its components and deal with each part separately.

"List as many attributes of a pencil as you can."

PLAYING WITH PROBABILITIES = Ability to use imagination for fantasy predictions.

"What would happen if it rained on every Saturday?" or "What would happen if a law was passed and all dogs and cats had to wear shoes?"

FORCED RELATIONSHIPS = Ability to make new associations or combinations of what already exists.

Make new combinations for sandwiches or blend new concoctions for nutritious drinks.

SENSITIVITY TO PROBLEMS = Recognition of problems without explicit definition.

Suggest some improvements for the social custom of marriage.

FORECASTING = Involves predicting cause and effect relationships.

"What would happen if people had four hands?" or "What would happen if Christmas was in July?"

REFERENCE LIST

Biehler, R. F. (1978). Psychology Applied to Teaching. Massachusetts: Houghton Mifflin.

McKee, J. S. (Ed.). (1983). Ways to cultivate creativity in your classroom. Early Childhood Education Annuals Edition, 52, 212-214.

Shallcross, D. J. (1981). Teaching creative behavior. New Jersey: Prentice-Hall.

WHAT DO YOU THINK?

STUDENTS: Please carefully respond to the following statements. Take time and think about the CREATIVITY ACTIVITIES we have shared this semester. I need to know what you liked and what you didn't like. Your comments will be very helpful to me.

Indicate how strongly you agree or disagree by circling one of the responses for each of the following statements:

PART A:	SA	A	U	D	SD
(1) The creativity activities provided useful information for me.....					
(2) I now understand more about creativity than before.....					
(3) The ideas were presented in such a way that I could easily follow them.....					
(4) The information & guidance received by the instructor was meaningful.....					
(5) I learned more about how to plan creative activities...					
(6) I now know better how to help children to express their creativity.....					
(7) I enjoyed sharing ideas during the brainstorming sessions.....					
(8) I would have liked more time spent on the exercises.....					
(9) I would have liked more materials on creative thinking.....					

SD = strongly disagree
D = disagree
U = undecided
A = agree
SA = strongly agree

	SA	A	U	D	SD
(10) I believe the creativity sessions will help me to solve my problems better.....					
(11) I feel I am competent to teach these creativity skills to others.....					
(12) Creative thinking & problem solving skills should be included in all courses.....					

PART B: SENTENCE STEMS

STUDENTS: Read the following sentence stems and complete them with your own ideas. How you really feel about the creativity activities this semester will be very helpful to me. Take your time and form your responses carefully.

1. CREATIVITY IS = _____

2. THINKING CREATIVELY MEANS = _____

3. THE BRAINSTORMING ACTIVITIES = _____

4. I FEEL = _____

5. WHAT I LEAST/MOST(circle one) ENJOYED WAS = _____

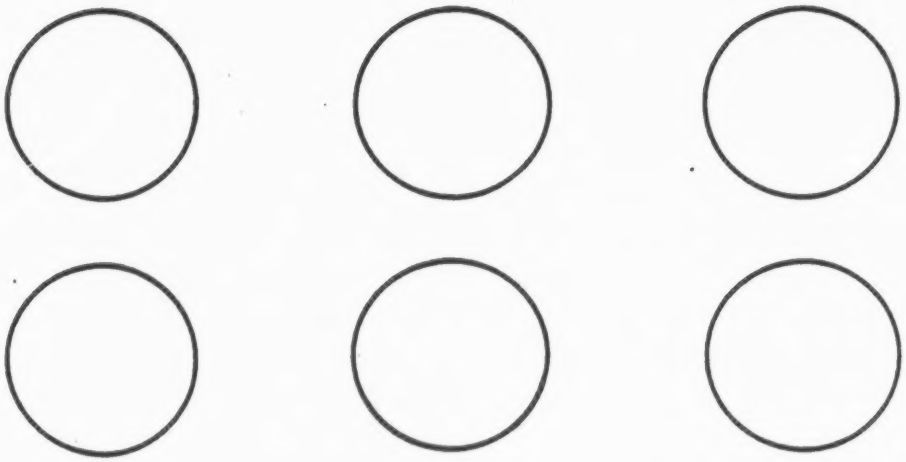
6. THE CREATIVITY EXERCISES DID/DID NOT (circle one) HELP MY PLANNING ABILITY = _____

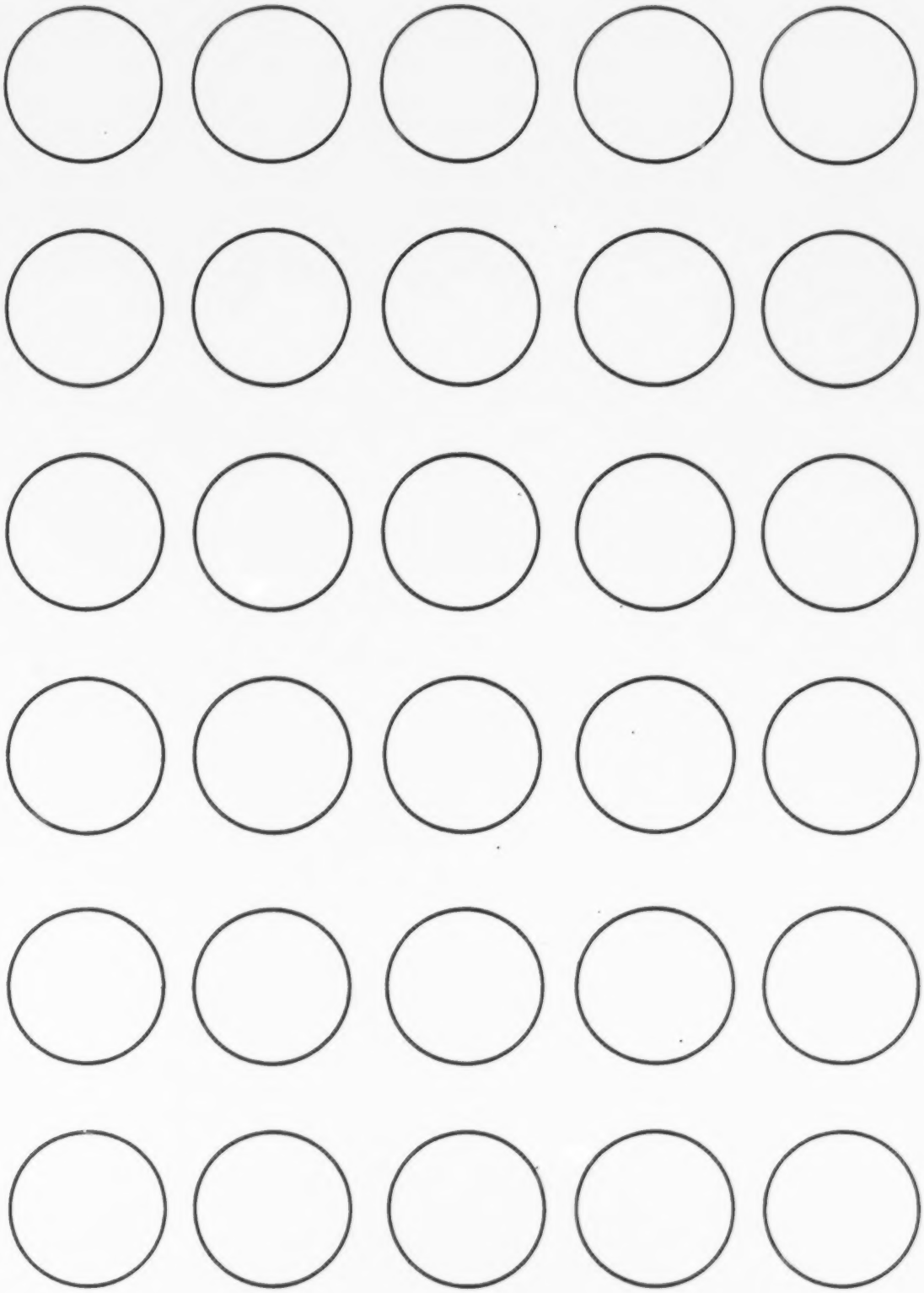
TORRANCE TEST OF CREATIVE THINKING (TTCT)

Thinking Creatively with Pictures, FIGURAL - BOOKLET A

Activity 3. CIRCLES APPENDIX E

In ten minutes see how many objects or pictures you can make from the circles below and on the next page. The circles should be the main part of whatever you make. With pencil or crayon add lines to the circles to complete your picture. You can place marks inside the circles, outside the circles, or both inside and outside the circles—wherever you want to in order to make your picture. Try to think of things that no one else will think of. Make as many different pictures or objects as you can and put as many ideas as you can in each one. Make them tell as complete and as interesting a story as you can. Add names or titles below the objects.





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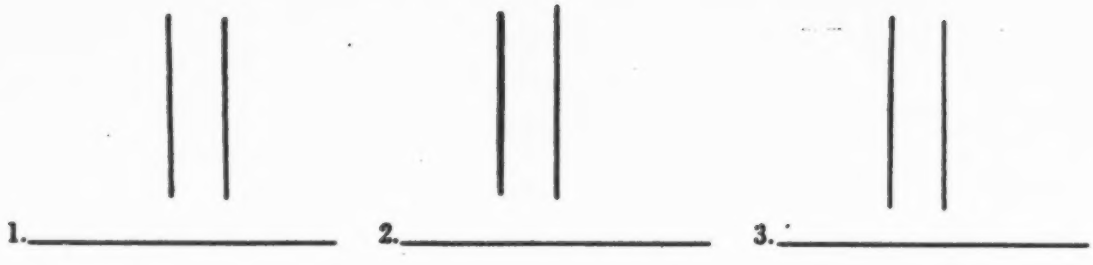
Activity 3. LINES

In ten minutes see how many objects or pictures you can make from the pairs of straight lines below and on the next two pages. The pairs of straight lines should be the main part of whatever you make. With pencil or crayon add lines to the pairs of lines to complete your picture. You can place marks between the lines, on the lines, and outside the lines—wherever you want to in order to make your picture. Try to think of things that no one else will think of. Make as many different pictures or objects as you can and put as many ideas as you can in each one. Make them tell as complete and as interesting a story as you can. Add names or titles in the spaces provided.



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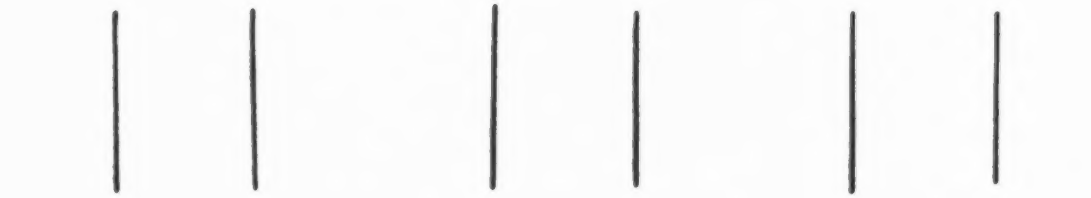

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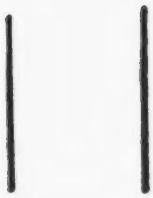

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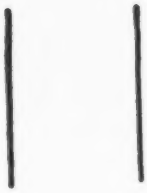

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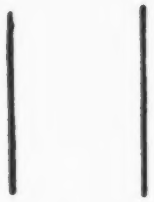

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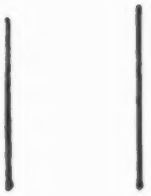

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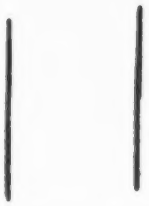

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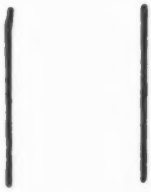

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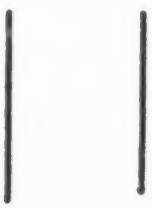

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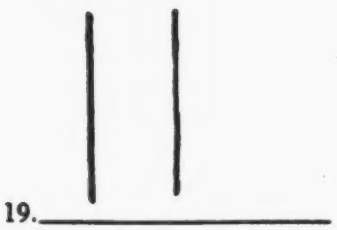

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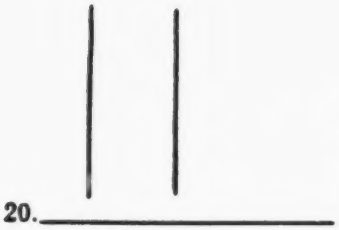

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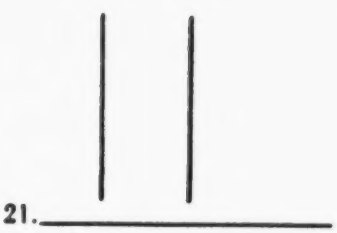

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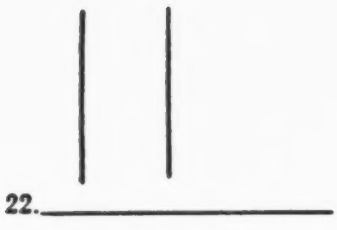

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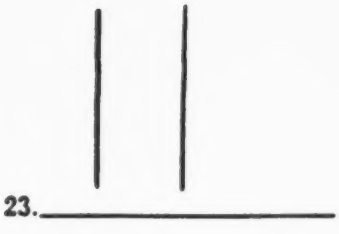

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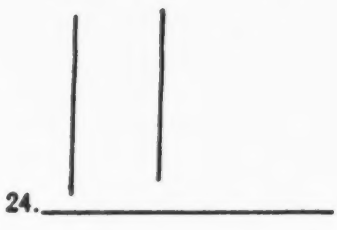

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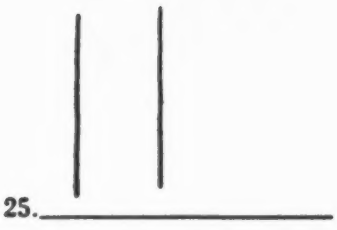

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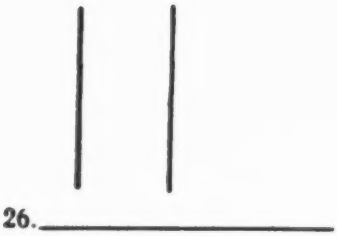

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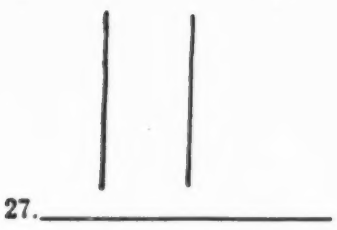

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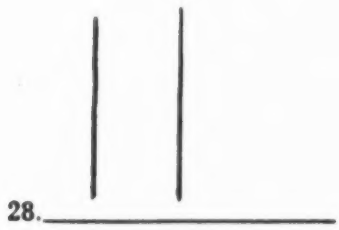

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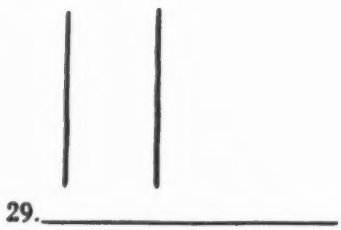

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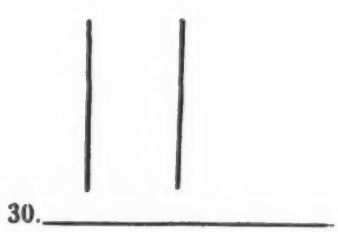

30.

Activity 4: PRODUCT IMPROVEMENT

In the middle of this page is a sketch of a stuffed toy elephant of the kind you can buy in most dime stores for about one to two dollars. It is about six inches tall and weighs about a half pound. In the spaces on this page and the next one, list the cleverest, most interesting and unusual ways you can think of for changing this toy elephant so that children will have more fun playing with it. Do not worry about how much the change would cost. Think only about what would make it more fun to play with as a toy.

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Activity 4: PRODUCT IMPROVEMENT

In the middle of this page is a sketch of a stuffed toy monkey of the kind you can buy in most dime stores for about one to two dollars. It is about six inches tall and weighs about six ounces. In the spaces on this page and the next one, list the cleverest, most interesting and unusual ways you can think of for changing this toy monkey so that children will have more fun playing with it. Do not worry about how much the change would cost. Think only about what would make it more fun to play with as a toy.

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